

Notice of Allowability

Application No.

10/603,469

Examiner

Jaison Joseph

Applicant(s)

SMIT, GERRIT

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Response to Ex Parte Quayle Action filed on 05/01/2007.
2. ☒ The allowed claim(s) is/are 1-30.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Michael Cameron on 07/06/2007.

The application has been amended as follows:

Claim 6 rewrite as: A method of estimating a modulation index and frequency offset of a received continuous-phase-modulated (CPM) signal, the method comprising:

- filtering the received CPM signal via at least two filters;
- calculating an α value and a β value;
- receiving a signal output by each of the at least two filters, the α value, and the β value; and
- calculating estimates of the modulation index and frequency offset from the filtered received signals and the received α value and β value.

Claim 17 rewrite as: A method of estimating a modulation index and frequency offset of a received continuous-phase-modulated (CPM) signal, the method comprising:

- whitening noise of the received CPM signal;
- filtering the noise-whitened CPM signal via at least two filters;
- processing a training sequence;

receiving a signal output by each of the at least two filters and the processed training sequence; and

calculating estimates of the modulation index and frequency offset from the filtered received signals and the processed training sequence.

Claim 23 rewrite as: An estimator for estimating a modulation index and frequency offset of a received continuous-phase-modulated (CPM) signal, the estimator comprising:

at least two filters for filtering the received CPM signal;

a noise whitener for whitening noise of a signal output by the at least two filters;

an initializer for processing a training sequence;

a processor for receiving signals output by the noise whitener and the processed training sequence; and

wherein the processor is adapted to calculate an estimate of the modulation index and the frequency offset from the signals output by the noise whitener received signals and the processed training sequence.

Claim 26 rewrite as: The estimator of claim 24, wherein the data model matrix is modeled by the following equation:

$$B = \begin{bmatrix} b_2 & c_1 & 1 \\ b_3 & c_3 & 1 \\ b_4 & c_4 & 1 \\ \dots & \dots & \dots \\ \dots & \dots & \dots \\ \dots & \dots & \dots \\ b_{N-1} & c_{N-1} & 1 \end{bmatrix}$$

$$B = \begin{bmatrix} b_2 & c_2 & 1 \\ b_3 & c_3 & 1 \\ b_4 & c_4 & 1 \\ \dots & \dots & \dots \\ \dots & \dots & \dots \\ \dots & \dots & \dots \\ b_{N-1} & c_{N-1} & 1 \end{bmatrix}$$

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wherein $b_2, b_3, b_4, \dots, b_{N-1}$, represent bits of a training sequence; and

wherein $c_2, c_3, c_4, \dots, c_{N-1}$, represent filter coefficients.

Claim 28 rewrite as: The estimator of claim 24, wherein the data model matrix is modeled by the following equation:

$$B = \begin{bmatrix} d_1 & 1 \\ d_2 & 1 \\ d_3 & 1 \\ \dots & \dots \\ \dots & \dots \\ \dots & \dots \\ d_{N-1} & 1 \end{bmatrix}$$

$$B = \begin{bmatrix} d_2 & 1 \\ d_3 & 1 \\ d_4 & 1 \\ \dots & \dots \\ \dots & \dots \\ \dots & \dots \\ d_{N-1} & 1 \end{bmatrix}$$

wherein $d_2, d_3, d_4, \dots, d_{N-1}$, represent filter coefficients.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: Claims 1 –30 are allowable over prior art of record. The prior art of record failed to teach an estimator for estimating a modulation index and frequency offset of a received continuous phase modulated signal the estimator comprising at least two filters for filtering the CPM signal, a calculator for calculating an a and b value, a processor for receiving a signal output by each of the at least two filters the a value and the b value and wherein the processor is adapted to calculate estimates of modulation index and frequency offset from the signals received by the processor and the received a value and the b value as claimed in independent claim 1 and similarly claimed in claimed in independent claims 6, 12, 17, 23 and 24. Thus claims 1- 30 are novel and unobvious over prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jaison Joseph whose telephone number is (571) 272-6041. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jaison Joseph
07/06/2007


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER